UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,413	03/16/2004	Yoshiki Kino	1232-5345	3850

27123 7590 04/27/2005

MORGAN & FINNEGAN, L.L.P.
3 WORLD FINANCIAL CENTER
NEW YORK, NY 10281-2101

EXAMINER	
RUTLEDGE, DELLA J	

ART UNIT	PAPER NUMBER
2851	

DATE MAILED: 04/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/802,413	KINO, YOSHIKI	
	Examiner	Art Unit	
	D. Rutledge	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-14 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Oath/Declaration

1. An executed Declaration was received on 16 March 2004.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 4 – 9, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokuda et al. (US 2003/0038929) in view of Kitano et al. (US 2002/0127340). Tokuda et al., teaches, in paragraph [0078], that the system for controlling impurities may be used in an exposure apparatus or in a coating / developing system. The secondary reference, Kitano et al., disclose a coating and developing treatment system in which impurities such as moisture, vapor, oxygen, ozone, etc. are detected because of their adverse effect when used in a short wavelength environment, (see paragraph [0007, 0009, 0012, 0017, 0077-0079]). One of ordinary skill in the art at the time the

invention was made would be motivated, then, would be motivated to use the multiple detecting system taught by Kitano et al. in an exposure system to control the adverse effects of the impurities on the exposure light quantity. The impurities would be reduced and the exposure would be controlled in accord with the known relationships between the impurity and the exposure light as featured in claims 5-7. Tokuda et al. discloses an exposure environment in which an excimer laser including a fluorine laser is used as featured in claims 8, 9and 12.

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokuda et al. (US 2003/0038929) in view of Kitano et al. (US 2002/0127340).
The combination does not disclose details of the optical or illumination system, however, using an ND filter and a diaphragm to control intensity and shape of the light source are so commonly used in the art that one of ordinary skill in the art, at the time the invention was made, would not have needed to use inventive skill to determine to use such components for the stated reasons.

5. Claims 2, 3, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokuda et al. (US 2003/0038929) in view of Kitano et al. (US 2002/0127340). as applied to claim 1 above, and further in view of Hiroyuki (JP 11-087230).

The combination of references do not disclose using a light quantity detector in controlling the exposure source and reducing the light absorbing impurities. Hiroyuki, in the same environment teaches using the light quantity when trying control impurities

and control the light source. See the abstract and the quantity of light sensor 6 and the oxygen density sensor 7 in Fig. 1. See also, Fig. 3 One of ordinary skill in the art at the time the invention was made would be motivated to use the value of the light quantity in controlling the light source because taking into consideration the quantity of light emitted as well the amount and type of impurity one would be able to control the light and the impurities more accurately.

6. Claims 1 – 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroyuki (JP 11-087230) in view of Kitano et al. (US 2002/0127340).

Hiroyuki has the apparatus, namely a system that discloses detecting the concentration of oxygen (sensor 7), detects the quantity of light (sensor 6) and controls the exposure based on the detected results. See the method steps in Figs. 3 – 5. The control would inherently use the relationship between the light absorbing impurity and the light source. The reference teaches the use of a fluorine laser in column paragraph 6 (claims 8 and 9). The reference does not disclose an ND filter (claim 10) or diaphragm (claim 11), but as discussed above in regard to the Tokuda et al. reference, one of ordinary skill in the art would be motivated to use such components because of their ability to control the shape and intensity of the light source. The Kitano et al. reference teaches that more than one impurity may be detected in a lithographic environment. One of ordinary skill in the art at the time the invention was made would have been motivated to detect other light absorbing impurities to more accurately exposure the wafer.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tanimoto (US 6,704,988), Nishi (US 6,690,450) and Japanese reference 2000-124109 disclose detecting the concentration of an impurity such as oxygen and then reducing the concentration to a predetermined amount.

Response Data

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Rutledge whose telephone number is (571) 272-2127. The examiner can normally be reached on Mon - Thurs, 6:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.
Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D. Rutledge
Primary Examiner
Art Unit 2851

dr
4/6/05